DEVIATIONS IN THE PHYLLOTAXY OF LANTANA TRIFOLIA

BY

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In May 1929 I met with some plants of *Lantana trifolia* which stood in a strip of grassland along the border of a cultivated tobacco-field in the vicinity of Medan, Eastcoast of Sumatra. Of these plants several branches showed deviations in their phyllotaxy together with anomalies of the foliage-leaves; some of the cases I think interesting enough to describe them here in some detail. The shoots under consideration sprang from shrubs which had been cut down just a short time before I found the plants. Mixed up with the shrubs of *Lantana trifolia* were some plants of the commoner *Lantana Camara,* but as far as could be ascertained these *Camara*-plants did not exhibit any defective phyllotaxy. *Lantana trifolia* normally has its leaves ternate (the whorls are alternating) whereas in *Lantana Camara* the leaves are opposite (decussate). In all cases to be described below only the upper 5 whorls are considered, the fifth (and topmost) whorl being the one in which the foliage-leaves had already reached a length of 2 cm.

a. (fig. 1). This is a rather simple case as in all whorls the leaves are decussate. The fourth whorl seems to be a normal one though really there are 2 opposite leaves only; this is brought about by the splitting up of one of the leaves almost to its base.

b. As *a*; but in the topmost whorl the leaves are ternate.

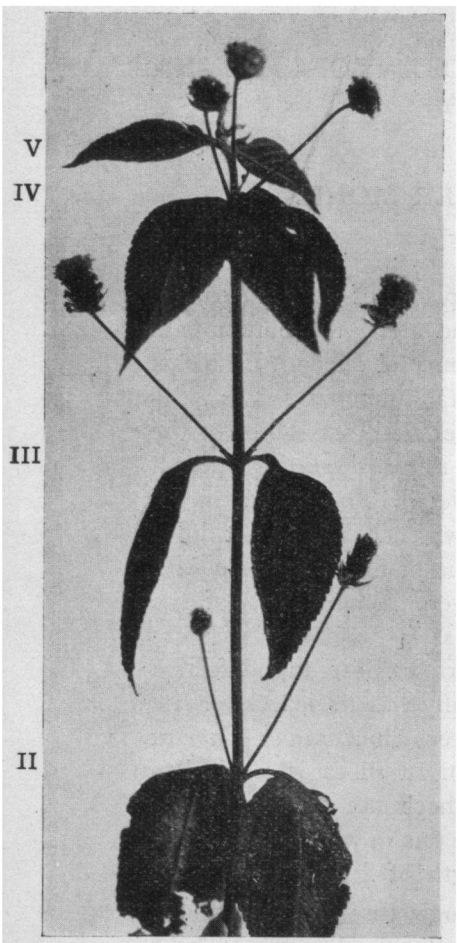

Fig. 1.

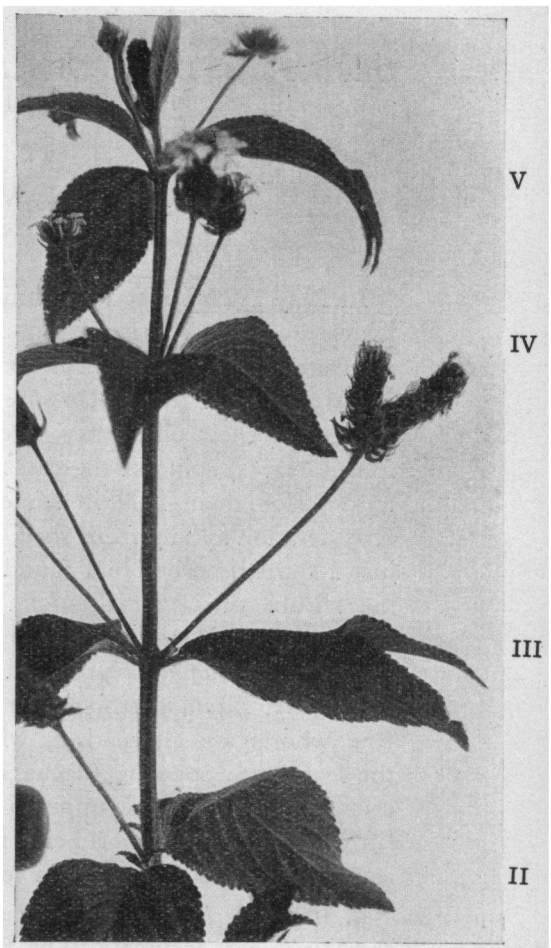

Fig. 2.

Moreover, one of the leaves of this whorl and both leaves of the fourth whorl have a double apex.

c. In the whorls I—III the leaves are opposite, in the whorls IV and V they are ternate. One of the leaves of the fourth whorl is bifid.

d. (fig. 2). In this case the leaves are decussate in the whorls I and II (the first whorl is not visible on the fig.) and one of the leaves of the second whorl is slightly bifid. The third whorl consists of 3 leaves (in the fig. two of the leaves cover up each other almost completely), but one of these leaves is split up to its middle. From the axil of this bifid leaf sprouts a peduncled spike which shows bifurcation. The fourth and fifth whorl are ternate, but one of the leaves of the topmost whorl has a double apex. From the figure we see that this bifid leaf is inserted on the same side of the shoot as is the bifid leaf of the third whorl.

e. The whorls II, III and V are normal, in the fourth whorl the leaves, one of which is trifid, are opposite. Of the first whorl all leaves (3?) have dropped.

f. The first and second whorls consist of 4 leaves each, the other whorls are normal. One of the leaves of whorl III is deeply split up.

g. (fig. 3). The whorls I, II and IV consist of 4 leaves each (one of the leaves of the second whorl is not visible in the figure as it is covered up by an other leaf of the same whorl). Of the normal third whorl one of the leaves is slightly bifid. Between the third and fourth whorl we find a separate leaf which fact leads to the supposition that this leaf may originally have belonged to the third whorl, but that it has been displaced during the early development of this part of the shoot. Whorl V is normal.

h. (fig. 4). The topmost whorl is normal, also the fourth whorl is a normal one. Between these two whorls there stands a separate leaf. Below the fourth whorl we count at least 4 nodes, each with 2 leaves. Considering the peculiar

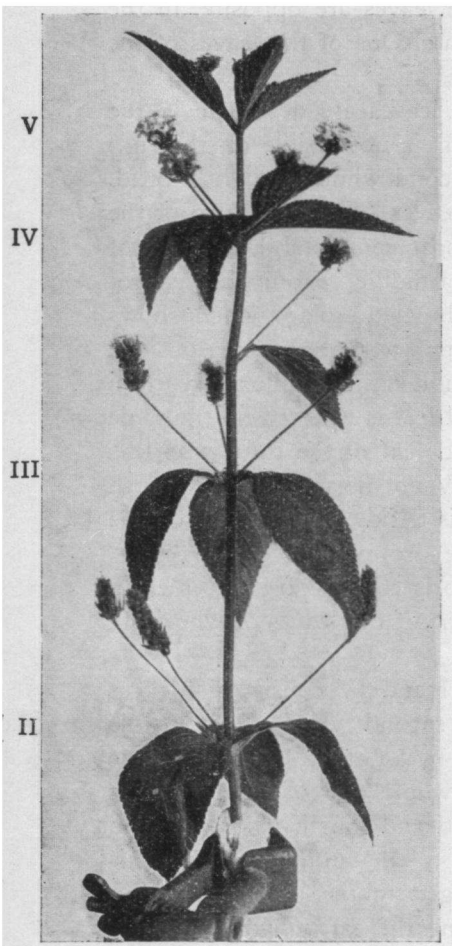

Fig. 3.

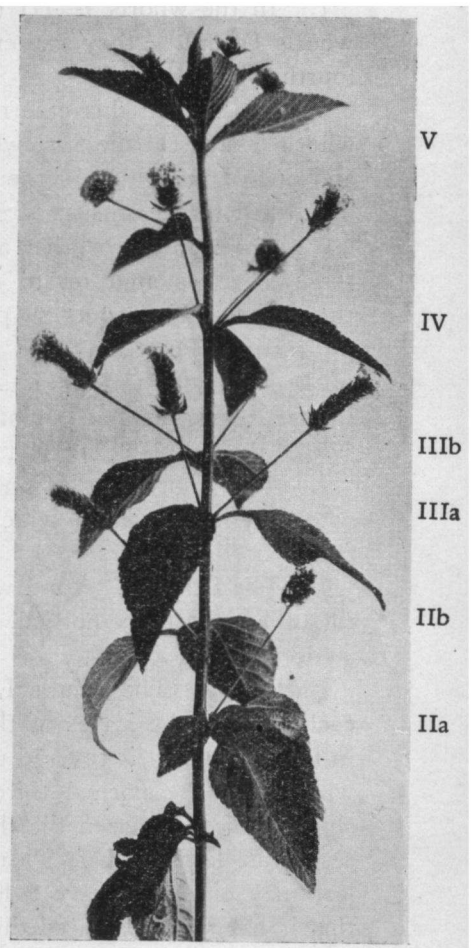

Fig. 4.

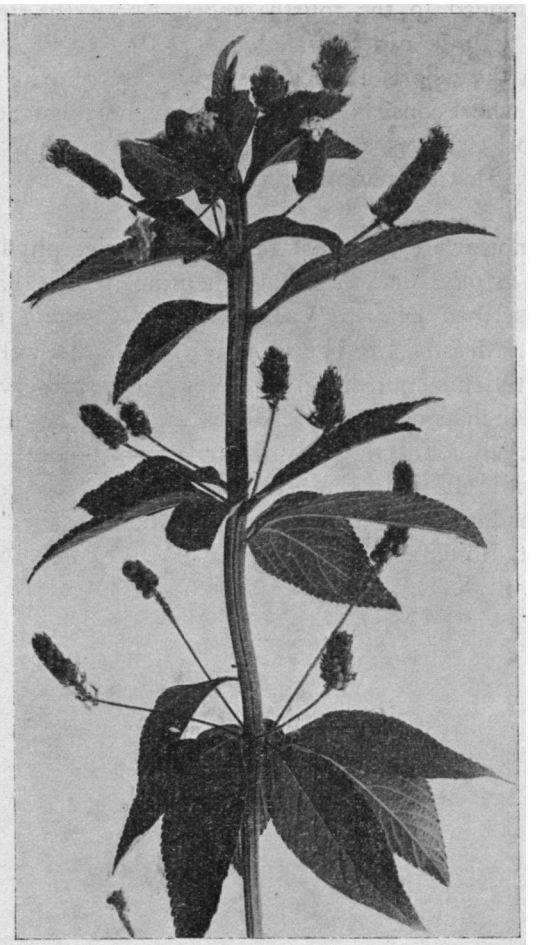

Fig. 5.

insertion of the leaves in these „whorls" we may presume that in this case, too, there have occurred displacements and that, originally, the whorls III*a* & *b* and II*a* & *b* formed two whorls, each consisting of 4 leaves. The separate leaf between the fourth and fifth whorl may originally

have belonged to the fourth whorl. About the first whorl nothing definite can be said.

e. In the whorls II—IV the leaves are quinate whereas the first whorl consists of 4 leaves. At a short distance below this whorl 2 leaves are inserted.

f. (fig. 5). Fasciation of the shoot.

I am not aware of it that cases of defective phyllotaxy in *Lantana trifolia* like the above-mentioned ones have ever been described before. With regard to *Lantana Camara*, however, Messrs. Costerus and Smith, the well-known Dutch students in tropical teratology, have observed anomalies which consisted in changes of the arrangements of the leaves in connection with their fission, tending to show „that the doubling of the leave as a rule, but not regularly, is foreshadowed by its producing a double apex" (Ann. Jard. bot. Buitenzorg, 2e série, vol. IV, 1905, p. 164—165; cf also vol. XIII, 1896, p. 103).